

1. Thermally Induced Gallium Removal

Team Members

CST-6	George Havrilla
MST-6	Marius Stan
NMT-15	H. Thomas Blair
NMT-15	Chris A. James
NMT-15	David G. Kolman
NMT-15	Carol J. Lopez
NMT-15	Rebecca V. Maez
NMT-15	Anthony C. Martinez
NMT-15	Roberta M. Simpson
NMT-15	Michael R. Lopez
NMT-15	Alejandro G. Carrillo
NMT-15	Kenneth M. Chidester
NMT-15	Yangsoo Park
Ceramatec	Darryl P. Butt

Project Summary

The team has developed a way to remove gallium from plutonium oxide so that the plutonium can be used as nuclear reactor fuel. Typical processes to remove gallium produce acid waste, but the new process does not produce any liquid waste stream.

2. TA-16-260 H.E. Oil Reduction

Team Members

ESA-FM	Elmer Velasquez
ESA-WMM	Paul Chapman
ESA-WMM	Richard Hale
ESA-WMM	Tito Sanchez
ESA-WMM	Arthur Gonzales
ESA-WMM	Steve Rivera

Project Summary

Historically, waste oil from high-explosives machines was burned as a hazardous material. New evaluations confirm that the oil can be carefully removed without contaminating it, and the waste oil no longer meets the definition for reactivity. This process revision saves 250 to 330 gallons of waste oil annually

3. Perchloric Acid Fume Scrubber

Team Members

PMD/DS Dennis Basile

Project Summary

Use of a perchloric acid fume scrubber in LANL's CMR Building will save over 90% of the liquid waste that would result from a comparable standard wet scrubber. This translates into an avoidance of up to 4.3 million pounds of radioactive waste per year.

4. TCE Mechanical Spray Washer

Team Members

NMT-15 Peter C. Lopez
NMT-15 Jose D. Ortega
NMT-15 Stephanie P. Lopez
Comforce David B. Mann
Comforce Debra P. Johnson

Project Summary

LANL's Weapons Component Technology Group has developed a mechanical spray washer to clean plutonium parts. The washer uses 75% less TCE (mandated by DOE certification requirements) than current ultrasonic cleaning methods and eliminates the requirement for a specific operating permit from NMED. The new equipment reduces operator exposure to both TCE and radiation and may reduce the annual volume of TCE waste by greater than 95%.

5. TA-48 RC45 Clean Chemistry/Mass Spectrometry "Green Is Clean" Program Implementation

Team Members

CST-11 Diane Kottmann
CST-11 Fred Roensch
CST-11 Joe Banar
CST-11 Wes Efurd
CST-11 Jane Poths
CST-11 Patrick Foy

CST-11	Mike Murrell
CST-11	Sandra Wagner
CST-11	John Chamberlin
CST-11	Stephanie Boone
CST-11	Andy Nunn
CST-11	Robert Steiner
CST-11	Kimberly Israel
CST-15	Robyn Petersen

Project Summary

Implementation of a "Green Is Clean" program, along with extensive training, allows workers to separate clean solid waste from low-level radioactive waste. Currently, nearly 100% of solid waste can be designated as being below contamination limits and can be disposed of in the sanitary landfill, saving approximately 6 cubic meters of low-level waste and \$3000 in disposal costs annually.

6. SIGMA Mesa Clean-Up & Recycling "Waste Not" Project

Team Members

BUS-4	R. Gary Chavez
ESH-1	Johnny Jameson

Project Summary

This project was undertaken to disassemble and recycle a significant inventory of packaging systems no longer needed at LANL. Nearly all of the components, including the storage trailers, were recycled. Nearly 29.5 tons of material were recycled, and only 15 pounds of trash were disposed of.

7. Reuse of Lead Slabs for Shielding

Team Members

NMT-4	Peter Anders
NMT-4	Charles Bonner
NMT-4	James Pecos
NMT-4	Leo Urbina
Weirich	Jeff Johnson

Project Summary

While dismantling an unneeded storage drawer in a radiological control area, workers discovered approximately 44 square feet of unobservable 1/4-inch lead. Rather than dispose of the lead as a cubic foot of waste, the team searched for a found a project that allowed them to use the material as wall-mounted lead shielding that will reduce worker radiological exposures.

8. Reusable Shielding Block

Team Members

NMT-4	Darrell Vigil
Weirich	Jeff Johnson

Project Summary

Workers designed a rolled steel cover for a massive radiation shield composed of lead and polyethylene. Encasing the shielding materials reduced the concerns posed by the lead and polyethylene. Also, the steel encasement can be easily decontaminated for free release after its useful life is over, or the shield itself can be easily moved and reused for another purpose.

9. Aerosol Cans from RCAs Processed as Recycled Metal

Team Members

FWO-SWO	Brady Means
NMT-7	Tony Drypolcher
FWO-SWO	Billy Romero
FWO-SWO	Roy Spencer
FWO-SWO	Kirk Meekin
FWO-SWO	Mario Medina
NMT-7	Egan McCormick
Benchmark	Connie Gerth
F.O.C.I.	Mark Waterman

Project Summary

Externally radioactively contaminated aerosol cans are processed at LANL's TA-54 to avoid the generation of a mixed low-level waste stream with no path forward and also to recycle the metal from the empty cans. Cost savings from processing existing cans has been \$101,250.

10. MLLW Leaded Casks Used for Source Burial as LLW

Team Members

CST-11	Frank Valdez
E-ET	Myrna Romero
E-ET	Joshua Lopez
FWO-SWO	Avril Millensted
LANSCCE-7	Joseph Raybun
LANSCCE-7	Jeffery Hannaford
LANSCCE-7	Joshua Garcia
LANSCCE-7	Mike Baumgartner
LANSCCE-7	Johnny Herrera
NIS-18-FM	Marilee Fuehrer
NIS-5-FM	Matthew Hykel
Butler	Steve Martinez
F.O.C.I.	Mark Waterman
Weirich	Mathew Romero
Weirick	Charles Amies

Project Summary

Mixed low-level waste lead-lined casks were externally decontaminated and used for source burial as low-level waste. The thirteen casks, with a MLLW volume of 145 cubic feet, were deemed non-RCRA due to the high activity LLW sources placed in the casks and the need to provide ALARA dose protection. By using the casks in such a creative manner, the team eliminated a waste stream with no path forward and saved approximately \$45,000.

11. TA-53 Avoided MLLW Metals Processed as Recycled Metals

Team Members

LANSCCE-7	Johnny Herrera
LANSCCE-7	Jeffery Hannaford
LANSCCE-7	Jake Salazar
LANSCCE-7	Stephen Morgan
LANSCCE-7	Mike Baumgartner
LANSCCE-7	Jake Salazar
LANSCCE-ESH	Dave Dorsey
LANSCCE-FM	Tom Nolen
LANSCCE-FM	John Pieniazek
F.O.C.I.	Mark Waterman
GTS Duratek	Ray Walker

GTS Duratek Troy Eshleman

Project Summary

A cross-functional team drained various LANSCE beam components and metals of petroleum products, removed RCRA metal-containing switches, and segregated for metal recycle. The project avoided 865 cubic feet of mixed low-level waste for a cost savings of approximately \$265,000.

12. Avoided MLLW through Segregation and Reclassification

Team Members

ESH-5	Kirk Meekin
FWO-SWO	John Kelly
FWO-SWO	Chris Duy
ESH-1	Mario Medina
Comforce	Randy Axtell
GTS Duratek	Louis Jalbert

Project Summary

The team verified, sorted, and segregated 848 cubic feet of mixed low-level waste from various generators. The segregation project was able to identify a large portion of the waste as compactible LLW. Cost avoidance totaled \$82,600, and additional savings brought the total to \$86,200.

13. Otowi Green Zia Project

Team Members

BUS-1	Sarah Wright-Hoffman
BUS-4	Anthony Garcia
FWO-DF	James Dalton
FWO-DF	Stephen McCleary
HR-5	Patrick Martinez

Project Summary

Since June 1999 the steering team for this project has sought ways to systematically reduce waste generation and resource consumption in a typical office environment. The project has included an energy audit of the building, wider participation in existing Laboratory P2 programs, segregation of clean and food-contaminated waste,

and careful assessment of how to add a P2 emphasis to everything from procurement to paper use.

14. Reduction of TRU Caustic Waste from PU Recovery

Team Members

NMT-2	Keith W. Fife
NMT-2	Jennifer L. Alwin

Project Summary

Recovery of plutonium from special operations at TA-55 generates over 1500 liters per year of TRU caustic chloride waste solution. Modifications to the plutonium-recovery operations will remove approximately 80% of this liquid waste stream.

15. Anode Casting Waste Reduction

Team Members

NMT-2	Leo Archuleta
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Project Summary

One step in the preparation of purified plutonium metal involves using magnesia crucibles to form metal ingots. The crucible becomes waste but must be processed further before being discarded, creating even more waste. Modification of the casting process allows crucibles from up to five casting runs to be consolidated and discarded as one item instead of five. This also created an 80% savings in plastic waste from bagging out. Other savings include an 80% reduction in non-destructive assay requirements and reduced radiation exposure.

16. Asphalt Recycling

Team Members

FWO-UI	Richard Fox
PMD/DS	Mark Harris

Project Summary

This project reused approximately 1,500 cubic yards of asphalt from roads and intersections around the Laboratory. The asphalt was ground up and eventually used as backfill material under new parking lots, as temporary sidewalk material, for a temporary bypass road, and as fill material under new intersections. The project avoided sending material to the landfill, eliminating the purchase of new fill material, and by minimizing the purchasing and hauling of special construction material.

17. HEWTF Waste and Contaminant Reduction

Team Members

ESA-WMM	Robert F. Garcia
ESA-WMM	Barton W. Olinger
ESH-18	Harvey L. Decker

Project Summary

Reconfiguration of the High Explosive Wastewater Treatment Facility has changed the facility from batch operations to continuous recirculation of wastewater. The change reduces the need to change the activated carbon as frequently, saving approximately \$30,000 per year and reducing the possibility of the facility exceeding NPDES limits. Use of a treatment/reclamation facility also helps reduce the amount of waste generated by approximately 8,000 pounds per year.

18. SMARTS: Berkeley Steel Reuse

Team Members

EES-15	Gene Gould
EES-15	Randy Mynard
ESA-DF	Joseph O'Toole
LANSCCE DO	Jon Kapustinsky
MST-8	Mark Bourke
LawarncceBNL	Brian Smith
LawarncceBNL	Manuel Gonzales

Project Summary

Los Alamos will accept from LBNL about 300 tons of steel plates, formerly used as magnet yokes for a now decommissioned particle accelerator, and use them as shielding for LANL's new Spectrometer for Materials Research at Temperatures and Stress (SMARTS). Compared with what it would cost to purchase new steel plates

commercially, LANL will save about \$250,000. LBNL will save approximately \$1 million in disposal costs.

19. Fiber-Optic Distribution TA-9 to TA-15

Team Members

CIC-4	Richard C. Beare
USWest	Kenneth R. Romero
USWest	Joe Valdo Jr.
USWest	Brenda E. Forget
USWest	David J. Schlegel
USWest	Victor M. Valenzuela
USWest	Scott D. Fliegel
USWest	Gerald W. Branch
USWest	Louis Chacon

Project Summary

This project reuses an abandoned 2-inch gas line to run fiber-optic cable. By not digging a new trench, the project minimizes soil disturbance, erosion, and growth disruption. Because a trencher is not needed, there is no air pollution and no potential for hazardous spills. And the project requires fewer workers and less materials.

20. TA-53 P2 and Waste Minimization

Team Members

LANSCE-FM	Tom Nolen
LANSCE-FM	John Pieniazek

Project Summary

This team was responsible for cleaning up several areas at TA-53 where materials had been stored for up to 15 years. The team surveyed, compacted, compiled, sorted, and segregated a large amount of material, including some material for which no disposal path had previously be identified. In addition to sending large amounts of material for recycling, the team helped eliminate the need for 14 hazardous waste satellite storage areas.

21. Stormwater Pollution Prevention Plan Development

Team Members

ESH-18	Jeffrey Walterscheid
ESH-18	Robin Reynolds
ESH-18	Michael Alexander
ESH-18	Steven Veenis
ESH-18	Ryan Romero
ESH-18	Chris McLean
Comforce	David Shaull
Merrick	Terrill Lemke
Merrick	Jennifer Foote

Project Summary

Creation of the "umbrella" Storm Water Pollution Prevention Plan covers over 1,000 LANL Solid Waste Management Units. This plan provides for reduced erosion potential, decreased potential for contaminants entering a watercourse, and a reduction in offsite migration. The team created cost savings by establishing 53 monitoring stations instead of using sample collection at 997 individual permitted Solid Waste Management Units.

22. Pu-238 Waste Solution Volume Minimization - Pu-238 Aqueous Scrap Recovery Qualification Plan

Team Members

NMT-9	Kevin Ramsey
NMT-9	Mary Ann Reimus
NMT-9	Paul Moniz
NMT-9	Amy Ecclesine
NMT-9	Maria Pansoy-Hjelvik
NMT-9	Gerald Alletzhauser
NMT-9	Gary Silver
NMT-9	Jonetta Nixon
NMT-9	Mary Remerowski
NMT-9	Jason Brock

Project Summary

As part of its work fabricating general-purpose heat sources, NMT-9 is developing, as a new capability at LANL, a Pu-238 aqueous recovery glovebox line. The team has evaluated operational processes to determine that minimal waste volumes can be generated during the purification of scrap plutonium oxide material. The optimal

process avoids the unnecessary yearly generation of up to 2000 liters of waste solution.

23. Upgrade of Argon Gas Flow System for O-16 Exchange and Sintering Furnaces

Team Members

NMT-9	Timothy McCurdy
NMT-9	Carlos Dozhier

Project Summary

The NMT-9 team has upgraded the design of the gas flow detection system for operations used to fabricate general-purpose heat sources typically used to power spacecraft for deep space missions. The new design replaces oil bubblers with flow meters and eliminates the generation of oil and plastic as transuranic waste.

24. ESA Machine Coolant

Team Members

ESA-WMM	Horace Gasca
ESA-WMM	Fred Algarra
ESA-WMM	Royce Taylor

Project Summary

The single largest generator of machine coolant waste has been the Laboratory's main machine shop. In FY98 the shop implemented a zero-waste strategy, and waste generation dropped from 14,000 kg annually to 4,000 kg. In FY99 the shop installed an evaporator to deal with the water that is the main constituent in spent coolant. The remaining oil is recycled, and the waste stream has now been nearly eliminated.

25. Waste Minimization/Stripping of Lead Shielding from Gloveboxes

Team Members

E-ET	Myrna Romero
E-ET	Robert Rios
E-ET	Ricky Baros
E-ET	Ron Salazar

E-ET	Jerry Lopez
E-ET	Joshua Lopez

Project Summary

Some gloveboxes at LANL have lead shielding on the exterior to protect workers from radiation. The E-ET team removes the shielding when the gloveboxes are destined for disposal. Lead removal from the gloveboxes helps the Laboratory avoid mixed waste, and the lead can be recycled for reuse.

26. Liquid Waste Minimization - Pu-238 Residue Solidification Process

Team Members

NMT-9	Susan Ramsey
NMT-9	Robert Grundemann
Idaho	Scott Ferrara

Project Summary

The NMT-9 team has designed several improvements to the process of dealing with liquid residue from fabrication of Pu-238 heat sources. Adjusting the pH of the waste stream eliminates the addition of chemical reagents and minimizes generation of TRU liquid waste. The team has also designed a new filter that eliminates a need for reprocessing. These process improvements have reduced the generation of TRU liquid waste from 200 liters per month to 75 liters per month.

27. JCNNM Heavy Equipment Shop Hot Water Parts Washer

Team Members

JCNNM	John Keene
JCNNM	James Salazar
JCNNM	Gilbert Mares

Project Summary

Installation of a hot-water automatic parts washer at the JCNNM Heavy Equipment Shop eliminated the use of 110 gallons of solvent per month to clean equipment parts. The change eliminated a source of hazardous waste, removed the need for a hazardous waste satellite storage area, and eliminated worker exposure to organic solvents. The new washer also collects and separates oil from the machine parts so the oil can be recycled.

28. Decontamination of Accelerator Cooling Systems

Team Members

APT-TPO	Michael A. Paciotti
APT-TPO	Frank D. Gac
APT-TPO	Lawrence Quintana
APT-TPO	Laurie S. Waters
APT-TPO	Terry L. Figueroa
ESH-1	Georgiana M. Vigil
LANSCE-12	Luc L. Daemen
LANSCE-7	Johnny Herrera
LANSCE-7	Jeffrey Hannaford
LANSCE-7	Peter D. Olivas
LANSCE-7	Joshua B. Garcia
LANSCE-7	Joseph L. Raybun
General Atomics	Matthew B. Richards
General Atomics	Richard K. Luu
General Atomics	David L. Hanson
INEL	John D. Baker
PN Services	Richard D. Reid

Project Summary

This team adapted a commercial decontamination process, originally developed for nuclear reactor systems, to special needs of water cooling systems associated with high-power accelerators. A chief contaminant in accelerator systems is Be-7. The team adapted the decontamination process so that Be-7 in the cooling system was reduced by a factor of 200 - 300, to below background levels. The method of capture also greatly reduces the potential for release to the geosphere after the contamination is buried.

29. Dry Machining of Pu Hemi Shells

Team Members

NMT-5	Pat Montoya
NMT-5	Steve Boggs

Project Summary

The process of machining Pu hemi shells without the use of cutting oil was developed at LANL. Prior to this development, Rocky Flats created thousands of gallons of contaminated waste performing this operation. LANL currently produces none.

30. Plywood Substitution Project

Team Members

JCNNM	Paul Sparks
JCNNM	Videlio Sandoval
JCNNM	Paul Boyce
JCNNM	David Ross
JCNNM	Davis Thomas
JCNNM	Giovanni Romero

Project Summary

Until this year, personnel at JCNNM's NTS shop had used plywood to support metal pieces being cut with a water-jet cutting process. The plywood supports were cut along with the metal and were disposed of as solid waste. The team redesigned the water-jet cutting process and replaced the plywood with steel supports. Ninety percent of the wood waste has been eliminated, and the organization will save \$3000 per year in raw material costs.

31. Elimination of Returned Samples

Team Members

E-ER	Terry Rust
Comforce	Joylene Valdez
IT Corp	Augusta Garcia
SAIC	Joseph T. Sena
Weirich	Mary Jane Winch

Project Summary

The ER Project has implemented a new approach to sampling. Rather than having the unused portion of a sample returned to the ER Project after radiological testing, the sample now goes directly to the LANL Sample Management Office for offsite analysis. While the process change removes a step of the waste stream, chain of custody and sample integrity are still maintained. This change has a potential savings of \$100,000 or more per year.

32. Reduced, Recycled, and Reused at MDA-P

Team Members

EES-15	Joe Leo Martinez
EES-15	Kenneth Bostick
EES-15	John Salazar
ESH-19	Richard Romero
ESH-19	Harry William Kopp
ESH-19	Albert A. Dye
ESH-19	Chelsea L. Leeches
IT Corp	Holly Benson-Wheeler
IT Corp	John M. Tymkowych
Roy F. Weston	Charles W. Criswell
Weirich	Mary Jane Winch

Project Summary

The closure project for Material Disposal Area (MDA) P has been the ER Project team's most challenging remediation project. The team has proactively reduced waste volumes through recycling and reuse initiatives including

- 3660 cubic yards of soil that would be classified as industrial waste were used as fill at TA-54, saving \$150,000
- 2600 cubic yards of concrete that would be classified as industrial waste were recycled, saving \$100,000
- 1800 cubic yards of scrap metal that would be classified as industrial waste were recycled, saving \$90,000
- 130,000 gallons of decontaminated water and storm water were reapplied to the site for dust suppression

33. Oil Recycle Staging Area for DX Division

Team Members

DX-2	Joe Richardson
ESH-19	Michelle Cash

Project Summary

This project established a central collection point within DX Division to stage nonhazardous, nonradioactive waste oil for recycling. The staging area makes it easier to manage and control the waste because the oil is concentrated at one site.

The new area also provides limited access to the waste and includes secondary containment units.